Claims

1. A fluid pressure actuator comprising an inner tube that expands and contracts as the fluid is fed and discharged, a mesh sleeve covering the outer periphery of said inner tube and of which the diameter expands and of which the length contracts as said inner tube expands, and a low friction member obtained by so knitting fine fibers as to possess expanding and contracting properties between said inner tube and said mesh sleeve, said low friction member being so arranged as to cover said inner tube.

2. A fluid pressure actuator according to claim 1, wherein said low friction member has a coefficient of friction for said mesh sleeve, which is smaller than a coefficient of friction thereof for said inner tube.

3. A fluid pressure actuator according to claim 1, wherein said friction member is obtained by knitting a synthetic fiber of a combination of a polyurethane core fiber and a nylon fiber so as to exhibit expanding/contracting property.

4. A fluid pressure actuator according to claim 3, wherein said synthetic fiber has a thickness of about 40 deniers.

5. A fluid pressure actuator according to claims 1 to 4, wherein said low friction member is a cylindrical body

obtained by knitting in the circumferential direction without seam.

6. A fluid pressure actuator according to claim 5, wherein the low friction member knitted in said circumferential direction without seam is a cylindrical body which, when contracted, has a diameter nearly equal to the diameter of the inner tube

7. A fluid pressure actuator according to claim 1, wherein said inner tube is formed having a noncircular shape in cross section maintaining the same surface area yet increasing the sectional area that is surrounded thereby in at least part of a step of shifting from the contracted state to the expanded state.

8. A fluid pressure actuator according to claim 7, wherein the inner tube having said noncircular shape in cross section has a plurality of ridge-like portions that protrude inward in cross section when it is being contracted, and the ridge-like portions are expanded when the fluid is fed into the inner tube to expand the diameter of the inner tube.

9. A CPM device comprising a base member, a turning member coupled to the base member so as to be turned and is turned relative to said base member to effect the joint motion of the human body that is mounted or supported, and a first joint motion mechanism including an actuator for feeding the power to said turning member, wherein said actuator is a fluid

pressure actuator comprising an inner tube that expands and contracts as the fluid is fed and discharged, a mesh sleeve covering the outer periphery of said inner tube and of which the diameter expands and of which the length contracts as said inner tube expands, and a low friction member obtained by so knitting fine fibers as to possess expanding/contracting properties between said inner tube and said mesh sleeve, said low friction member being so arranged as to cover said inner tube.

10. A CPM device according to claim 9, wherein said friction member is obtained by knitting a synthetic fiber of a combination of a polyurethane core fiber and a nylon fiber so as to exhibit expanding/contracting property.

11. A CPM device according to claim 9, wherein said low friction member is a cylindrical body obtained by knitting in the circumferential direction without seam.

12. A CPM device according to claim 9, wherein said fluid pressure actuators are provided in a plural number to reciprocally move said turning member within a predetermined angular range relative to said base member, and the air is fed to, or discharged from, the fluid pressure actuators depending upon the direction of turn of said turning member.

13. A CPM device according to claim 9, wherein said turning member is provided with an additional joint motion mechanism which effects a simple or a composite joint motion

to a portion moved by said turning member and to a portion beyond thereof.

14. A CPM device according to claim 9, wherein said additional joint motion mechanism is a second joint motion mechanism that is provided on said turning member, and effects the joint motion between the portion moved by said turning member and the portion beyond thereof.

15. A CPM device according to claim 9, wherein said additional joint motion mechanism is a third joint motion mechanism for turning the portion moved by said turning member and the portion beyond thereof inward and outward simultaneously.

16. A CPM device according to claim 9, wherein said additional joint motion mechanism is a fourth joint motion mechanism provided between said base member and said turning member to effect the joint motion for the root portion of the portion supported by said turning member.

17. A CPM device according to claim 9, wherein said additional joint motion mechanism includes, being provided on said turning member, two or more joint motion mechanisms out of a second joint motion mechanism that effects the joint motion between the portion moved by said turning member and the portion beyond thereof, a third joint motion mechanism for turning the portion moved by said turning member

and the portion beyond thereof inward and outward simultaneously, and a fourth joint motion mechanism provided between said base member and said turning member to effect the joint motion for the root portion of the portion supported by said turning member.